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| 10/523,701 | 02/03/2005 | Tim Fiedler | 03P19405 | 8047 |
| 24252 7590 01/31/2007 OSRAM SYLVANIA INC 100 ENDICOTT STREET DANVERS, MA 01923 | | | EXAMINER KOSLOW, CAROL M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1755 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 01/31/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/523,701

Applicant(s)

FIEDLER ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-15 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2/3/05</u> | 6) <input type="checkbox"/> Other: ____ |

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The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892 or by applicants on form PTO-1449, they have not been considered.

The disclosure is objected to because of the following informalities: The specification refers to claim 1. This is improper since the allowed claim 1 may not be the same as originally filed claim 1. For the formulas on page 6, the variables "u", "v" and "w" are not defined. For the formulas on page 6 and 7, the variables "A", "B", "o", "a", "b" and "s" are not defined. Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The actual subject matter in original claim 1 and the range of claim 8.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference number 23 in figure 19. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

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“Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim 6 is objected to because of the following informalities: In claim 6, “Mg, N or Be or Na or Li” should be rewritten as “Mg, N, Be, Na or Li”. Appropriate correction is required.

Claim 7 is objected to because of the following informalities: The formula should be rewritten using subscripts. Appropriate correction is required.

The narrow number ranges after the terms “preferably” and “in particular” in the claims have been given no patentable weight. This is because the phrase or number range after these terms are examples of the broad term or range and claims are given their broadest interpretation. Applicants may add dependent or independent claims directed to the above narrow phrase or range.

Claims 1, 5, 7 and 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of “K” as a variable in claims 1 and 7 indefinite since K generally stands for potassium and potassium can be a charge compensator. It is suggested to replace “K” with “KA, KB and/or KC” in claim 1 and with “KC” in claim 7. In claim 5, the variables “A”, “B”, “o”, “a< “b” and “s” are not defined. In claims 7, 11 and 12, the variables for the charge compensator should be the same as in claim 5. Thus “K” should be “KC” and “y” should be “s” in claim 7, “y” should be “b” in claim 11 and “y” should be “a” in claim 12. Claims 10-13 are indefinite since it is unclear if the definitions for s, x and y are preferred or not, due to the phrase “in which

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in particular". This is because "in particular" implies a preferred range. Finally, claim 13 is improperly dependent on claims 5 and 1 since it does not contain a charge compensation component. Vacancies are not considered as a component.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-6, 8, 12, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,093,890.

This reference teaches a terbium activated garnet phosphor and low-pressure mercury vapor discharge lamps containing the phosphor. The lamp is known to emit white light and that it provides an excitation wavelength in the claimed range. Tables 1 and 2 teach phosphors have the formula $Y_{2-x}Al_{4-x}Mg_xSiO_{12}:Tb$, x is 0.5, 0.75, 1, 1.25, 1.75 and 2. Table 3 teaches phosphors have the formula $Y_2Al_{4-y}Ga_yMgSiO_{12}:Tb$, where y is 0.2, 0.4, 0.8, 2 and 4. Table 5 teaches phosphors have the formula $M_2Al_4MgSiO_{12}:Tb$, where M is $Y_{1.8}Gd_{0.3}$, $Y_{1.45}Gd_{0.55}$, $Y_{1.2}Gd_{0.8}$ and

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YLu. These phosphors fall within the claimed formulas. The reference teaches the claimed phosphor and light source.

Claims 1, 2, 4, 5, 8, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,093,890.

This reference teaches a terbium activated garnet phosphor having the formula $\text{Ln}_{3-x}\text{A}_{5-x-2y}\text{M}^{\text{II}}_{x+y}\text{Si}_{x+y}\text{O}_{12}:\text{pTb}$, where Ln is at least one of Y, Gd and Lu, A is at least one of Al and Ga, M^{II} is at least one of Mg, Ca, Sr and Zn, $x=0-2.8$, $y=0-2$, $x+y=0.4-2.8$, $p=0.02-1.5$ and $x+p \leq 3$. As stated above, this reference teaches the phosphor is used in discharge lamps, which have the claimed white light emission and excitation wavelength. This formula overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed phosphor and light source.

Claims 1, 2, 4-6, 8, 12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 53-128587.

The abstract and formulas for this reference teaches a terbium activated garnet phosphor and low-pressure mercury vapor discharge lamps containing the phosphor. The lamp is known to emit white light and that it provides an excitation wavelength in the claimed range. The phosphor has the formula $\text{Y}_{3-x}\text{Mg}_x\text{Al}_{5-x}\text{Si}_x\text{O}_{12}:\text{Tb}$, where x is 0.2-2.5. the examples on page 2 teaches formulas where x is 1 and 0.5. The reference teaches the claimed phosphor and light source.

Claims 1, 2, 4-6, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53-128587.

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The abstract for this reference teaches a terbium activated garnet phosphor having the formula $Y_{3-x}Mg_xAl_{5-x}Si_xO_{12}:Tb$, where x is 0.2-2.5. This formula overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). As stated above, this reference teaches the phosphor is used in discharge lamps, which have the claimed white light emission and excitation wavelength. This formula overlaps that claimed. The reference suggests the claimed phosphor and light source.

Claims 1, 2, 4, 5, 8, 12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 53-128588.

The abstract and formulas for this reference teaches a terbium activated garnet phosphor and low-pressure mercury vapor discharge lamps containing the phosphor. The lamp is known to emit white light and that it provides an excitation wavelength in the claimed range. The phosphor has the formula $Y_{3-x}Ca_xAl_{5-x}Si_xO_{12}:Tb$, where x is 0.2-2.5. the examples on page 2 teaches formulas where x is 1 and 0.5. The reference teaches the claimed phosphor and light source.

Claims 1, 2, 4, 5, 8, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 53-1285878.

The abstract for this reference teaches a terbium activated garnet phosphor having the formula $Y_{3-x}Ca_xAl_{5-x}Si_xO_{12}:Tb$, where x is 0.2-2.5. This formula overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383

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(CCPA 1960). As stated above, this reference teaches the phosphor is used in discharge lamps, which have the claimed white light emission and excitation wavelength. This formula overlaps that claimed. The reference suggests the claimed phosphor and light source.

Claims 1-6, 12, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 7,029,602.

This reference teaches a phosphor having the formula $Y_2MgAl_4SiO_{12}:Ce$ (col. 15, line 16-17). Lines 55-64 of column 15 teaches using this phosphor in a white light source which further comprises a LED which emits light in the range of 405-515 nm. The reference teaches the claimed phosphor and light source.

Claims 1-6, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 7,029,602.

This reference teaches a phosphor having the formula $MLn_2SiR_4O_{12}:D$, where M is at least one of Mg, Ca, Sr and Ba, Ln can be at least one of Y, Tb, Gd, La and Lu, R can be at least one of Al and Ga and D can be at least one of Ce, Eu and Pr (col. 8, lines 5-24). This formula overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). Lines 55-64 of column 15 teaches using this phosphor in a white light source which further comprises a LED which emits light in the range of 405-515 nm. The reference suggests the claimed phosphor and light source.

Claims 1-6, 11, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent application publication 2005/0093431.

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This reference teaches a phosphor having the formula $(Y_{1-x}Tb_x)_3MgSiAl_3O_{12}$, where x is 0.2 or 0.8. This formula falls within that claimed. The reference also teaches a white light source comprising this phosphor and an LED which has a peak emission in the range of 250-550 nm. The reference teaches the claimed phosphor and light source.

Claims 1-6, 8, 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2005/0093431.

This reference teaches a phosphor having the formula $(Y_{1-x-y}Tb_xGd_y)_3M_tSi_t(Al_{1-r}Ga_r)_{5-2t}O_{12}$, where M is Mg or Zn, $0 < x+y < 1$, $0.1 < t < 1.5$ and $0 < r$. This formula overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960).

The reference also teaches a white light source comprising this phosphor and an LED which has a peak emission in the range of 250-550 nm. The reference suggests the claimed phosphor and light source.

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7 and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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There is no teaching or suggestion of a phosphor having the formula $[A_{3-a}KA_a]_A[B_{5-b-x}KB_bSi_x]_B[O_{12-x}N_x]_O:D$, where $a(m_{KA}-3)+b(m_{KB}-3)+x=(-4x)$, A is a rare earth metal, D is a rare earth metal and B is Al and/or Ga. There is no teaching or suggestion of a phosphor having the formula $A_3B_{5-x}Si_xO_{12-s}KC_s:D$, where $s \leq 2x$, $x=s-(m_{KC}-2)$, A is a rare earth metal, D is a rare earth metal and B is Al and/or Ga. There is no teaching or suggestion of a phosphor having the formula $A_{3-(x/3)}B_{5-x}Si_xO_{12}:D$, where A is a rare earth metal, D is a rare earth metal and B is Al and/or Ga.

U.S. patent application publication 2006/0197443 since it teaches a phosphor having the formula $RE_3(Al_{a-y-z-w}Ga_zSc_wSi_y)(O_{12-y}N_y)$, where RE is at least one of Lu, Gd, Y and Tb, w is 0-2, z is 0-4.999, a is 4.5-5 and y is 0.001-0.5 and a white light source that contains the phosphor and a LED which emits wavelengths in the range of 250-550 nm. While this reference suggests the claimed phosphor and light source, its effective filing date is after the filing date of applicants PCT application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

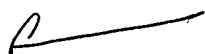
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
January 29, 2007


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Primary Examiner
Tech. Center 1700